



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,737	02/16/2006	Lukas Bestmann	5788	1195
26936 7590 07/24/2007 SHOEMAKER AND MATTARE, LTD 10 POST OFFICE ROAD - SUITE 110 SILVER SPRING, MD 20910			EXAMINER BERTAGNA, ANGELA MARIE	
			ART UNIT 1637	PAPER NUMBER
			MAIL DATE 07/24/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/563,737

Applicant(s)

BESTMANN, LUKAS

Examiner

Angela Bertagna

Art Unit

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) 1-36, 57-65, 73 and 74 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-56 and 66-72 is/are rejected.
- 7) ☒ Claim(s) 37-56 and 66-72 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/6/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II, claims 37-56 and 66-72 in the reply filed on May 2, 2007 is acknowledged. The traversal is on the ground(s) that the claims share a special technical feature and that Chan et al. (US 6,355,420 B1) does not teach all of the elements of amended claim 1 (see pages 1 & 3 of the response). These arguments were not found persuasive, because the prior art of Lipshutz et al. (US 5,856,174) anticipates the instant claims 37-44, 46, 51, 54, and 56 (see section 8 below). As a result, the claims lack a special technical feature linking them over the prior art, and a lack of unity requirement is proper.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-36, 57-65, 73, and 74 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on May 2, 2007.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement filed January 6, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that

Art Unit: 1637

portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. Specifically, a copy of WO 01/92569 has not been provided.

Specification

4. (A) Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it recites legal phraseology, specifically, the word "said". Correction is required. See MPEP § 608.01(b).

- (B) The disclosure is objected to because of the following informalities: the "Brief Description of the Drawings" heading is missing.

Appropriate correction is required.

Claim Objections

5. Claims 37-56 and 66-72 are objected to because of the following informalities: these claims depend from withdrawn claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 37-56 and 66-72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 37-56 and 66-72 are indefinite, because claims 26 and 70 (from which claim 37 depends) recites the phrase “where appropriate.” As noted in MPEP 2375.05(b), “the meaning of a term cannot depend on the unrestrained subjective opinion of the person practicing the invention.” In this case, use of the phrase “where appropriate” causes the required components of the composition of claim 26 and the required characteristics of the device of claim 70 to depend on the unrestrained, subjective opinion of the person practicing the invention, and therefore, the claims are indefinite. It is noted that substitution of “optionally” for “where appropriate” would overcome this rejection.

Claim 52 contains the trademark/trade name Aerosil®. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or

Art Unit: 1637

trade name. In the present case, the trademark/trade name is used to identify/describe fumed silica, and accordingly, the identification/description is indefinite.

Claim 56 recites the limitation "said unit for supplying a liquid" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 37-44, 46, 51, 54, and 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Lipshutz et al. (US 5,856,174).

Regarding claim 37, Lipshutz teaches a unit for preparing reaction mixtures for chemical reactions comprising an inlet, an outlet (see column 18, lines 38-49 and column 19, lines 16-29), and at least one support (see column 8, lines 23-28). Lipshutz further teaches that the solid support is coated with a lyophilized composition comprising: (i) a polymerase, (ii) $MgCl_2$, (iii) dNTPs, (iv) at least one primer, (v) a stabilizer, (vi) substances for detection of the reaction product, (vii) further additives (column 7, lines 49-60 teach a composition comprising a polymerase, primers, dNTPs, metal cations, salts (i.e. further additives), and buffers (i.e. stabilizing agents); column 8, lines 16-42 teach lyophilization and coating on the solid support; column 8, lines 44-50 teach labeled primers or dNTPs for detection of the reaction product; column 32, lines 30-42 teach inclusion of $MgCl_2$).

Art Unit: 1637

Regarding claim 38, Lipshutz teaches that the unit is a cartridge (see column 26, lines 34-51).

Regarding claim 39, Lipshutz teaches that the chemical reaction is PCR (column 6, lines 28-50 and column 7, line 65 – column 8, line 42).

Regarding claim 40, Lipshutz teaches membrane solid supports (column 30, lines 15-22).

Regarding claim 41, Lipshutz teaches that the composition is bound as a lyophilizate to the support (column 8, lines 16-20).

Regarding claim 42, Lipshutz teaches that the unit of claim 37 further comprises a device for applying elevated or reduced pressure (see column 21, lines 19-52).

Regarding claim 43, Lipshutz teaches that a capillary is attached above the inlet (see Figure 3 and column 18, lines 26-37, where the first fluid channel 204 is a capillary attached above inlet 208).

Regarding claim 44, Lipshutz teaches that one or more additional membranes are present between the inlet and support to which the composition is bound (see column 23, lines 1-26, where Lipshutz teaches rupture membranes between the inlet and the reaction chamber comprising the solid support; see also column 30, lines 15-28, where Lipshutz teaches filters).

Regarding claim 46, Lipshutz teaches that at least one additional solid support is designed so that polynucleotides can be bound thereto (see column 6, lines 3-27).

Regarding claim 51, Lipshutz teaches that a substance that absorbs solids is provided in the space between two membranes (see column 6, lines 3-27, where Lipshutz teaches solid supports for nucleic acid binding; column 23, lines 1-26 teaches that the different areas of the

Art Unit: 1637

device are separated by rupture membranes, and therefore, the solid support for binding nucleic acids is located between two membranes).

Regarding claim 54, Lipshutz teaches that a unit for supplying a liquid is provided above the support provided for binding polynucleotides (column 6, lines 3-27, where the washing taught by Lipshutz inherently requires a unit for supplying liquid above the support for binding polynucleotides; see also column 18, lines 26-37 and Figure 3, where first fluid channel 204 is a unit for supplying liquid located above the support provided for binding polynucleotides).

Regarding claim 56, Lipshutz teaches that the unit for supplying a liquid is separated from the interior of the unit by a membrane, which can be made permeable upon application of reduced pressure (see column 23, lines 1-26, where rupturable membranes between the different chambers of the device are taught; column 23, line 38 – column 24, line 10 teaches that the membrane may be made permeable upon application of reduced pressure).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 37-47, 51, 53-55, and 66-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pourahmadi et al. (WO 99/33559 A1) in view of Oultram et al. (WO 01/92569 A2; cited on IDS).

Art Unit: 1637

Pourahmadi teaches methods and devices for purification and amplification of nucleic acids (see abstract, Figure 2, and page 10, line 17 – page 12, line 14).

Regarding claim 37, Pourahmadi teaches a unit for preparing reaction mixtures for chemical reactions comprising an inlet (see Figure 2 and page 10, lines 17-23), an outlet (page 22, lines 7-10), and at least one support (see page 23, line 4 – page 24, line 21). Pourahmadi further teaches that the solid support is coated with a lyophilized composition containing reagents for PCR amplification (page 23, line 4 – page 25, line 10)

Regarding claim 38, Pourahmadi teaches that the unit is a cartridge (page 10, lines 17-23).

Regarding claim 39, Pourahmadi teaches that the chemical reaction is PCR (page 10, lines 18-20).

Regarding claim 40, Pourahmadi teaches membrane solid supports (page 24, lines 5-21 and page 25, lines 5-9).

Regarding claim 41, Pourahmadi teaches that the composition is bound as a lyophilizate to the support (page 24, lines 23-35).

Regarding claim 42, Pourahmadi teaches that the unit of claim 37 further comprises a device for applying elevated or reduced pressure (page 16, lines 17-32 and page 43, lines 1-10).

Regarding claim 43, Pourahmadi teaches that a capillary is attached above the inlet (see page 21, lines 19-28, where the needle and syringe are capillaries attached above the inlet).

Regarding claim 44, Pourahmadi teaches that one or more additional membranes are present between the inlet and support to which the composition is bound (page 24, lines 5-21; see also page 33, lines 10-27, and page 61, lines 4-25).

Art Unit: 1637

Regarding claim 45, Pourahmadi teaches membranes between the inlet and solid support to which the amplification composition is attached (page 10, lines 25-30 teaches a first membrane filter for capturing cells, page 24, lines 5-20 teaches a second membrane containing dried lysis reagents, page 33, lines 10-27 teach removal of particulate matter using a third membrane filter, and page 11, lines 12-18 teaches a fourth membrane filter for capturing nucleic acids).

Regarding claims 46 and 47, Pourahmadi teaches that at least one additional solid support, specifically a membrane, is designed so that polynucleotides can be bound thereto (see page 24, lines 5-21, page 33, lines 10-37, and page 61, lines 4-25).

Regarding claim 51, Pourahmadi teaches that a substance that absorbs solids is provided in the space between two membranes (page 27, lines 30-36; see also page 33, lines 10-22).

Regarding claim 53, Pourahmadi teaches that a membrane closest to the inlet is impregnated with a lysing agent (page 24, lines 5-16).

Regarding claims 54 and 55, Pourahmadi teaches that a unit for supplying a liquid, specifically an eluent, is provided above the support provided for binding polynucleotides (page 11, line 28 – page 12, line 2 and Figure 2).

Regarding claim 66, Pourahmadi teaches a device for preparing reaction mixtures for chemical reactions, comprising:

(a) at least one unit according to claim 62 (see Figure 2 and page 10, line 17 – page 12, line 9 and above, where Pourahmadi teaches introduction of a sample into a unit of claim 37 followed by lysis of cells in the sample, nucleic acid purification using a solid support, elution from the solid support using an eluent, and flowing the purified nucleic acid through an outlet).

Art Unit: 1637

(b) at least one reaction device which is connected via an aperture to an outlet of the unit, and after charging with a reaction mixture, can be separated from the sample preparation device (page 12, lines 14-26).

Regarding claim 67 and 72, Pourahmadi teaches that the chemical reaction is PCR (page 12, lines 9-11).

Regarding claim 68, Pourahmadi teaches that the device comprises multiple units (page 13, lines 4-10 and Figure 3).

Regarding claim 69, Pourahmadi teaches that at least one unit is a cartridge (page 10, lines 17-23).

Regarding claims 70 and 71, Pourahmadi teaches that the at least one reaction device can, after charging with a reaction mixture, be taken out of the sample preparation device and transferred into a device for carrying out and evaluating chemical reactions (see page 12, lines 13-26 and page 13, lines 4-13).

Pourahmadi does not teach that the composition coated on the solid support comprises the composition of claim 26 as required by claim 37. Also, Pourahmadi teaches that the device comprises multiple cartridges (see Figure 3 and page 13, lines 4-10), but does not specifically teach that the device comprises three cartridges as required by claim 68.

Oultram teaches a dried composition for conducting PCR (see abstract and pages 2-3).

Regarding claim 37, the composition taught by Oultram comprises the following elements (see page 4, penultimate paragraph – page 5):

Art Unit: 1637

- (i) a solution comprising a polymerase
- (ii) MgCl_2 and KCl
- (iii) dNTPs
- (iv) two primers
- (v) a stabilizer (e.g. trehalose)
- (vi) a fluorescent reporter for detection of amplified products
- (vii) further additives (Tris-HCl)

Oultram further teaches that the above composition is a lyophilizate (see page 4, penultimate paragraph – page 5, 2nd paragraph).

Oultram teaches that the above composition advantageously only requires a single addition of an aqueous target sample to the lyophilizate to produce an aqueous reaction mixture containing all of the components for PCR (page 3, paragraph 2). Oultram further teaches that inclusion of a fluorescent reporter in the composition permits homogenous detection of amplification products, thereby simplifying the detection process and minimizing contamination opportunities (page 3, paragraph 3). Finally, Oultram teaches that use of the above composition has the advantages of more defined reaction conditions, convenience, and long shelf life (page 3, paragraph 3).

It would have been *prima facie* obvious for one of ordinary skill in the art at the time of invention to utilize the lyophilized composition taught by Oultram in the apparatus taught by Pourahmadi. An ordinary practitioner would have been motivated to so do, since Oultram taught that the lyophilized composition permitted homogeneous product detection, thereby simplifying the detection process and minimizing contamination opportunities (page 3, paragraphs 2-3). An

Art Unit: 1637

ordinary practitioner would have also been motivated to use the composition taught by Oultram in the apparatus taught by Pourahmadi since Oultram taught that the composition offered more defined reaction conditions, convenience, and a long shelf life (page 3, paragraph 3). An ordinary practitioner would have had a reasonable expectation of success in using the composition of Oultram in the apparatus taught by Pourahmadi since Pourahmadi taught that the dried reagents that could be coated on solid supports in the apparatus included polymerases, primers, probes, and buffer salts (see page 23, line 4 – page 24, line 35). Also, regarding claim 68, an ordinary practitioner would have been motivated to use any number of units in the apparatus (e.g. the claimed three units), since Pourahmadi expressly taught using multiple units (see page 13, lines 4-10 and Figure 3). An ordinary practitioner would have been motivated to increase the number of units in order to permit parallel analysis of multiple different samples simultaneously. An ordinary practitioner would have had a reasonable expectation of success in doing so, since Pourahmadi taught multiple units (see Figure 3 and page 13, lines 4-10). Thus, the apparatus of claims 37-47, 49, 51, 53-56, and 66-72 is prima facie obvious in view of the combined teachings of Pourahmadi and Oultram.

11. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pourahmadi et al. (WO 99/33559 A1) in view of Oultram et al. (WO 01/92569 A2; cited on IDS) and further in view of Nieuwkerk et al. (US 5,438,128).

The combined teachings of Pourahmadi and Oultram result in the apparatus of claim 46, as discussed above.

Art Unit: 1637

Pourahmadi teaches using membranes for binding nucleic acids (see page 11, lines 1-18) and also teaches the use of ion-exchange resin (page 27, line 30 – page 28, line 5), but does not teach that the membranes contain diethylaminoethyl groups as required by claim 48.

Nieuwkerk teaches methods for rapid nucleic acid purification using layered ion-exchange membranes (see abstract and column 2, lines 9-20). Regarding claim 48, Nieuwkerk teaches membranes functionalized with diethylaminoethyl (DEAE) groups (column 5, lines 13-56, especially lines 13-23). Nieuwkerk teaches that the ion-exchange membranes permit rapid, simple, and inexpensive purification of nucleic acids from small quantities of sample with high purity and yields (column 2, lines 8-23). Nieuwkerk further teaches that ion-exchange protocols using solid supports functionalized with amino groups are the method of choice for rapid isolation and purification of DNA (column 1, lines 57-66).

It would have been prima facie obvious for one of ordinary skill in the art at the time of invention to utilize a DEAE-functionalized membrane in the apparatus resulting from the combined teachings of Pourahmadi and Oultram. An ordinary practitioner would have been motivated to do so since Nieuwkerk taught that DEAE ion-exchange membranes offered a fast, simple, and inexpensive means for purifying nucleic acids for subsequent PCR amplification (see column 2, lines 8-23 and column 8, lines 6-15). An ordinary practitioner would have had a reasonable expectation of success in using the DEAE membranes taught by Nieuwkerk in the apparatus resulting from the combined teachings of Pourahmadi and Oultram, since Pourahmadi taught purification of nucleic acids using membranes (page 11, lines 1-18). Therefore, the apparatus of claim 48 is prima facie obvious in view of the combined teachings of Pourahmadi, Oultram, and Nieuwkerk.

Art Unit: 1637

12. Claims 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pourahmadi et al. (WO 99/33559 A1) in view of Oultram et al. (WO 01/92569 A2; cited on IDS) and further in view of Vankelecom et al. (Chemical Communications (1997) 137-138).

The combined teachings of Pourahmadi and Oultram result in the apparatus of claim 47, as discussed above.

Pourahmadi teaches that the apparatus contains hydrophobic membranes to create a fluid direction and control system (page 30, line 30 – page 31, line 9), but does not teach that the additional membrane is impregnated with a polydimethylsiloxane as required by claims 49 and 50.

Vankelecom teaches PDMS membranes (page 137, 1st paragraph). Vankelecom further teaches that these membranes are hydrophobic (page 137, 1st paragraph).

It would have been prima facie obvious for one of ordinary skill in the art at the time of invention to substitute any known hydrophobic membrane, such as the PDMS membranes taught by Vankelecom, in the apparatus resulting from the combined teachings of Pourahmadi and Oultram. An ordinary practitioner would have recognized that the hydrophobic PDMS membranes taught by Vankelecom were an art-recognized equivalent of the hydrophobic membranes taught by Pourahmadi, and therefore, would have been motivated to substitute one for the other. As noted in MPEP 2144.06, substitution of art-recognized equivalents useful for the same purpose is prima facie obvious. Therefore, in the absence of secondary considerations, the apparatus of claims 49 and 50 is prima facie obvious in view of the combined teachings of Pourahmadi, Oultram, and Vankelecom.

Art Unit: 1637

13. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pourahmadi et al. (WO 99/33559 A1) in view of Oultram et al. (WO 01/92569 A2; cited on IDS) and further in view of Gribanov et al. (Biochemistry (Moscow) 1996 61(6): 764-768).

The combined teachings of Pourahmadi and Oultram result in the apparatus of claim 51, as discussed above.

Neither Pourahmadi nor Oultram teaches that the substance that absorbs solids is Aerosil.

Gribanov teaches methods for purifying nucleic acids using microcentrifuge filters and Aerosil (page 764, column 2). Gribanov teaches that Aerosil has a remarkably high sorption capacity and is also inexpensive compared to other DNA sorbents (page 764, column 2 – page 765, column 1). Gribanov further teaches that purification of nucleic acids using microcentrifuge filters and Aerosil is simple and efficient (page 766, column 1 and page 768, column 2).

It would have been prima facie obvious for one of ordinary skill in the art at the time of invention to utilize Aerosil between two membranes of the apparatus resulting from the combined teachings of Pourahmadi. As discussed above, Pourahmadi taught inclusion of a cell capturing membrane (page 10, lines 25-30) and a filtration membrane (page 33, lines 10-27) in the apparatus. An ordinary practitioner would have been motivated to further include Aerosil between these membranes in order to efficiently and inexpensively bind a large quantity of nucleic acid for subsequent purification and PCR amplification. An ordinary practitioner would have had a reasonable expectation of success in doing so since Pourahmadi taught inclusion of solid-phase resins in the apparatus (page 27, line 30 – page 28, line 5) and Gribanov taught that Aerosil was useful for multiple types of nucleic acids including DNA fragments, plasmid DNA

Art Unit: 1637

and RNA (page 768, column 2). Thus, the apparatus of claim 52 is prima facie obvious in view of the combined teachings of Pourahmadi, Oultram, and Griбанov.

Conclusion

No claims are currently allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela Bertagna whose telephone number is 571-272-8291. The examiner can normally be reached on M-F, 7:30 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Angela Bertagna
Art Unit 1637 *AMB*
July 19, 2007

amb

N
**JEFFREY FREDMAN
PRIMARY EXAMINER**
7/19/07